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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,127	10/30/2003	Hyun Woo Song	2013P115	4968

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EXAMINER

PRENTY, MARK V

ART UNIT	PAPER NUMBER
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2822

DATE MAILED: 08/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

10/699,127

Applicant(s)

SONG ET AL.

Examin r

MARK PRENTY

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 15-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-13 and 15-17 is/are allowed.
- 6) ☒ Claim(s) 18-22 is/are rejected.
- 7) ☒ Claim(s) 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

This Office Action is in response to the RCE filed on July 25, 2006.

Claims 18 and 20-22 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent 5,493,577 to Choquette et al. (Choquette).

As to independent claim 18, Choquette discloses a semiconductor optical device (see the entire patent, including the Fig. 2 disclosure) comprising: confinement-conducting regions having semiconductor layers 20 (see column 10, lines 15-18, for example, and note that "carder" should apparently read "carrier"), each of the confinement-conducting regions including one or more material layers (note the paragraph bridging columns 12-13); and a gain region 18 having a semiconductor layer, which is formed between the confinement-conducting regions and includes one or more material layers, wherein the confinement-conducting regions and the gain region have a mesa structure, and a lateral portion of at least one of the material layers constituting the semiconductor layers of the confinement-conducting regions and the gain region is recessed, and the recess is partially or wholly filled with an oxide layer, a nitride layer or a combination of them (i.e., layers 20 have oxidized portions, which is structurally tantamount to their having recesses wholly filled with an oxide layer), wherein at least one reflecting mirror 14 is further formed so as to be parallel with the confinement-conducting regions and the gain region such that output light is perpendicular to the confinement-conducting regions and the gain region.

Claim 18 is thus rejected under 35 U.S.C. 102(b) as being anticipated by Choquette.

As to dependent claim 20, Choquette's oxide layer is formed of Al_2O_3 (i.e., aluminum oxide – see column 9, lines 22-24).

Claim 20 is thus rejected under 35 U.S.C. 102(b) as being anticipated by Choquette.

As to dependent claim 21, Choquette's semiconductor layers 20 constituting the confinement-conducting regions are one of a p-type semiconductor layer, an n-type semiconductor layer and a combination of them (see column 6, lines 46-54, together with column 10, lines 4-14).

Claim 21 is thus rejected under 35 U.S.C. 102(b) as being anticipated by Choquette.

As to dependent claim 22, Choquette's semiconductor layer 18 constituting the gain region is one of a p-type semiconductor layer, an n-type semiconductor layer, and an undoped semiconductor layer (see column 8, lines 17-25).

Claim 22 is thus rejected under 35 U.S.C. 102(b) as being anticipated by Choquette.

Claim 19 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over United States Patent 5,493,577 to Choquette et al. (Choquette). Specifically, claim 19 depends on independent claim 18, which is rejected under 35 U.S.C. 102(b) as being anticipated by Choquette (see above). The above explanation of the rejection of independent claim 18 under 35 U.S.C. 102(b) as being anticipated by Choquette is hereby incorporated by reference into this rejection of dependent claim 19 under 35 U.S.C. 102(b) as anticipated by or, in

the alternative, under 35 U.S.C. 103(a) as obvious over Choquette. The difference, therefore, between device claim 19 and Choquette's device is a process one (i.e., their oxide layers are formed by atomic layer deposition and oxidation, respectively). Insofar as claim 19's oxide layer appears to be structurally the same as or similar to Choquette's oxide layer (in view of their similar use, for example), claim 19 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Choquette. See MPEP 2113.

Claim 23 is objected to as being dependent upon a rejected base claim, but would be allowable over the prior art of record if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1-13 and 15-17 are allowable over the prior art of record.

The applicant's response filed on February 28, 2006 notes: "Amended Claim 18 combines all of the limitations of original Claims 9 and 15 to recite allowed features 'wherein at least one reflecting mirror is further formed so as to be parallel with the confinement-conducting regions and the gain region such that output light is perpendicular to the confinement-conducting regions and the gain region,' as recited in allowed Claim 15." However, although original dependent claim 15 was first indicated as being allowable if rewritten to include all of the limitations of original independent claim 9 (see the Office Action mailed on March 16, 2005), original dependent claim 15 was subsequently rejected under 35 U.S.C. 102(b) as being anticipated by Choquette (see the Office Action mailed on August 4, 2005). Independent claim 18 is thus now rejected under 35 U.S.C. 102(b) as being anticipated by Choquette.

Art Unit: 2822

Registered practitioners can telephone the examiner at (571) 272-1843. Any voicemail message left for the examiner must include the name and registration number of the registered practitioner calling, and the Application/Control (Serial) Number. Technology Center 2800's general telephone number is (571) 272-2800.

Mark Prenty
Mark V. Prenty
Primary Examiner